



QS-R-012  
REVISION G

EFFECTIVE DATE: November 20, 2003

---

# ORGANIZATIONAL INSTRUCTION

## S&MA (QS) OPERATION OF THE MSFC CORRECTIVE ACTION SYSTEM

OPR (s)

OPR DESIGNEE

QS10, QS20, QS30,  
and QS40

John McPherson

CHECK THE MASTER LIST AT: <http://inside.msfc.nasa.gov/MIDL/>  
VERIFY THAT THIS IS THE CORRECT VERSION BEFORE USE

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 2 of 26

### DOCUMENT HISTORY LOG

Status (Baseline/ Revision/ Canceled)	Document Revision	Effective Date	Description
Baseline		11/21/97	
Revision	A	02/24/98	Revised to Include Quality System Discrepancy Notice (QSDN) Processing; Add nonconformance trending and preventive action effectiveness evaluation; Adjusted for compatibility with January 30, 1998 MPG 1280.4, Revision A
Revision	B	9/1/98	Revised to match revisions in MPG 1280.4, Rev. B regarding CAB meeting not always required for RCAR closure; Add review to assure each data field has an entry (data or the word NONE) for POC closure submittal per NQA Audit Report 98/35812/S01, Ref. No. 3 Nonconformance
Revision	C	3/3/99	In response to RCAR 96 / QSDN 40, revise processing by PAC to emphasize monthly PAC statusing of open RCARs, 5-day turn-around on PAC screening activities, and 10-day turn-around on PAC activities in reviewing responses and coordinating POC and CAB activities
Revision	D	7/1/99	Changes made to reflect new organization code changes and/or Changes made to reflect new directives renumbering scheme and to incorporate the corrective action for closure of NCR 266
Revision	E	9/09/02	Format and numbering change to implement requirements of QS-A-001 rev F.
Revision	F	09/02/03	Change name of QualComm to Centerwide Customer Feedback System; Change S&MA organization references from QS10 to QS40
Revision	G	11/20/03	Revise Draft RCAR trend process (to resolve NCR 555) and correct retention schedule per input from MSFC Records Manager

**CHECK THE MASTER LIST AT: <http://inside.msfc.nasa.gov/MIDL/>**  
**VERIFY THAT THIS IS THE CORRECT VERSION BEFORE USE**

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 3 of 26

## S&MA (QS) Operation of the MSFC Corrective Action System

### 1. SCOPE

1.1 Scope This Organizational Instruction (OI) provides procedures for S&MA's processing and coordinating processing of corrective action system activities. It is applicable to all hardware and software discrepancies, Centerwide Customer Feedbacks, and quality system discrepancy notices reported to the MSFC Corrective Action System (CAS) through the lower level nonconformance systems which fall within the scope of MPD 1280.1, "MSFC Management Manual", and MPG 1280.4, "MSFC Corrective Action System".

1.2 Purpose The purpose of this OI is to establish the S&MA procedure and responsibilities for review, coordination, tracking, and disposition of problems reported through the MSFC CAS. The overall goal is to prevent recurrence of nonconformances, resolve customer complaints, correct quality system deficiencies, and assure that generic / systemic nonconformances are identified and addressed to prevent or minimized likelihood of occurrence on similar hardware, systems, or processes.

1.3 Applicability This organizational work instruction is applicable to discrepancies which were identified after the MSFC Corrective Action System was baselined on November 10, 1997. It applies to S&MA personnel charged with the responsibility for performing or coordinating activities of the MSFC CAS. It applies to MSFC in-house hardware, software, and quality system meeting the requirements of MPG 1280.4. The screening is performed to eliminate situations which do not increase risk of the discrepant entity (hardware, software, product, service, or procedure) or for which corrective action is not cost-effective.

### 2. APPLICABLE DOCUMENTS

MPD 1280.1            MSFC Management Manual

MPG 1280.4            MSFC Corrective Action System

**CHECK THE MASTER LIST AT: <http://inside.msfc.nasa.gov/MIDL/>  
VERIFY THAT THIS IS THE CORRECT VERSION BEFORE USE**

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 4 of 26

MPG 1280.8      Customer Satisfaction

MPG 1441.1      Control of Quality Records

MPG 8730.3      Control of Nonconforming Product

MWI 1280.2      MSFC Customer Feedback System

MWI 1280.3      Corrective/Preventive Action Notification System

MWI 1280.4      MSFC Quality System Deficiency Notice System

### 3. DEFINITIONS

3.1 Centerwide Customer Feedback. The documented result of an MSFC customer communication (e.g., complaint, observation, or compliment) regarding delivered MSFC products and services as specified by MWI 1280.2, MSFC Customer Feedback System.

3.2 Closed Problem. A problem is closed when the Corrective Action Board (CAB) has approved it as a resolved problem based on the determination of the root cause(s) or probable cause(s) and the implementation of the corrective action, or that no corrective action is required (i.e., Explained Problem).

3.3 Corrective Action. Action taken to correct nonconformances and to eliminate the cause of nonconformances to prevent recurrence.

3.4 Discrepancy Record (DR). MSFC Form 460 or comparable database record containing that information.

3.5 Explained Problem. A problem is explained when the CAB concurs in the problem analysis and the rationale for not establishing corrective action.

3.6 Failure. The inability of a system, subsystem, component, or part to perform its specified function within specified limits, under specified conditions, and for a specified duration.

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 5 of 26

3.7 Generic Problem. A problem condition that could potentially exist on any or all components of like or similar design.

3.8 Nonconformance. A condition of any article, material, software, service, or activity in which one or more characteristics do not conform to requirements. This includes failures, discrepancies, defects, malfunctions, and noncompliances.

3.9 Nonproblem. A submitted Recurrence Control Action Request (RCAR) which does not meet the criteria for being classified as a reportable problem (i.e., should not have become an RCAR).

3.10 Open Problem. A problem for which responsible NASA management have not approved problem resolution.

3.11 Quality System Deficiency Notice (QSDN). Quality System nonconformance which is documented as specified by the MWI 1280.4, Quality System Deficiency Notice System.

3.12 Probable Cause. The event or series of events occurring at the lowest level of assembly which failure investigation / analysis indicates is most likely responsible for the problem.

3.13 Recurrence Control Action Request (RCAR). A request initiated by S&MA to responsible organizations to investigate a nonconformance for the purpose of identifying a root cause and actions necessary to prevent recurrence. An RCAR is also used to record the results of the investigation, justification for not taking corrective action (explanation) or actions taken to implement the corrective action to include its effectiveness.

3.14 Reportable Problem. Any nonconformance, customer feedback, or quality system discrepancy that meets the criteria of Section 1.3. When the criteria is satisfied, a Recurrence Control Action Request (RCAR) is initiated (i.e., the discrepancy becomes a reportable problem).

3.15 Resolved Problem. A problem that has been closed by explanation or corrective action.

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 6 of 26

3.16 Root Cause. The underlying reason for, or cause of, one or more nonconformances or deficiencies identified through investigations and studies which, when corrected, will prevent occurrence or prevent or reduce recurrence.

3.17 Unexplained Anomaly. An anomaly (ghost or phantom) which cannot be repeated or for which a cause cannot be determined.

#### 4. INSTRUCTIONS

NOTE: For the purpose of this write-up, the term Project Manager and S&MA Representative should be interpreted in a broad sense and not only as the lead Project and S&MA person associated with a specific hardware project. Especially in the case of Customer Feedback and Quality System Discrepancy Notice (QSDN) CAS problems, these terms will be used to refer to the organizational or discipline personnel directly responsible for management and quality assurance monitoring, respectively, of the process or program involved.

There are basically three sources for initiation of corrective action / recurrence control: hardware / software nonconformance discrepancy reports (DRs), customer feedbacks (CFs), and Quality System Deficiency Notices (QSDNs). Each process is described separately in the following sections.

##### 4.1 Recurrence Control Action Request (RCAR) Processing Initiated by MPG 8730.3, Control of Nonconforming Product.

4.1.1 DR Receipt. The designated CAS Lead receives hardware and software discrepancy reports for RCAR evaluation, preferably via electronic media, e-mail or through the CAS data system. The Problem Assessment Center has no more than **five** work days from S&MA receipt of the report to review the data, determine if it is a reportable problem, and notify the appropriate MSFC personnel - i.e., the initiator if the issue is determined to not meet RCAR reportability or the technical point of contact (POC) responsible for analysis and corrective action recommendation of the designated RCAR, the Chief Engineer, and the S&MA project representative. If the data is provided other than through the on-line web system, the Problem Assessment Center

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 7 of 26

(PAC) transfers the data into the web system. If information in addition to CAS / DR data fields is provided in paper form (sketches, etc.), that information is converted to electronic media via scanning and added to the web-based system.

Once the initial information is present in the on-line electronic system, the CAS Lead performs a preliminary review of the data and assigns it to a PAC assessment engineer (AE) for processing.

The PAC AE reviews the data on-line. If there is critical data which is omitted, the AE consults the initiator of the discrepancy report or other person knowledgeable with the issue in order to complete the information to the fullest extent possible. The PAC AE then screens the report for applicability to the CAS.

4.1.2 DR Screening. Next, the PAC AE codes the nonconformance as to Failure Mode and Cause, if known. The PAC AE then reviews the historical database for similar DRs based on system / subsystem, hardware / software and failure mode. If at least five (5) similar discrepancies are found, then trending as described in Section 4.6 below will be performed. The AE also reviews the nonconformance against the Preventive Action Disposition Log to determine if a related preventive action applied to this entity was ineffective in preventing the discrepancy. If so and the preventive action was in response to a Corrective / Preventive Action Notification (CAN), then the PAC AE contacts the MSFC S&MA ALERT Coordinator, re-opens the CAN for the project in question, and notifies involved parties.

The PAC AE then screens the report for applicability to the CAS system. The PAC AE reviews the DR against CAS reporting criteria as defined in MPG 1280.4 (Reference Section 4.1.1, Figure 1). If these criteria are not met, the problem is eliminated from consideration as a potential CAS problem. In such a case, the data record is marked as not a CAS problem in the data system by the PAC AE and returned to the CAS Lead within the five workdays, along with rationale.

Based on these criteria, some examples of DRs which **do** require initiation of an RCAR are:

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 8 of 26

- a) A performance or test unsatisfactory condition or failure which, if occurring during mission, could jeopardize life, vehicle, or completion of prime mission objectives
- b) An unexplained anomaly
- c) A failure or unsatisfactory performance for which no known solution exists
- d) A situation which by itself has strong potential to affect a major mission or delivery milestone
- e) An issue for which the effect is not clearly understood to be benign
- f) An issue which is within performance parameters but demonstrates a clear trend toward an adverse condition by violating the 3 sigma range from previous performance
- g) An issue for which a decision regarding its significance is not determined within the required PAC evaluation time frame

As stated before, DRs which are eliminated from consideration as a CAS problem and from requiring an RCAR are marked as such in the database and returned to the CAS Lead, along with nonproblem rationale. The CAS Lead then reviews the nonproblem evaluation and either concurs or returns the item to the PAC assessment engineer with rationale for declaring it a CAS problem.

4.1.3 Initial Processing Of CAS DR RCAR. Once a DR has been accepted as a true CAS problem (i.e., an RCAR) by the CAS Lead, the PAC transfers the issue to the CAS database and completes the RCAR / CAS portion of the DR. If necessary, the PAC AE may consult the problem originator, the S&MA project representative, or other MSFC organizations to obtain a sufficient understanding of the situation to complete the initial CAS problem definition data fields. Once this information is complete in the CAS database, the information and the 10 working day deadline for initial POC response is forwarded via e-mail notification to the applicable POC responsible for RCAR resolution recommendation (a design engineer, for example), the chief of the POC's organization (the project chief engineer, for example), and the S&MA project representative. (NOTE: The POC directly responsible for problem analysis / resolution recommendation will be declared either in advance by the project or as needed in coordination with the organization chief or division



Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 9 of 26

director.) In each case, the prime individual responsible for problem evaluation, analysis, and development of corrective action is specifically noted in the data record and in the CAS Lead's project contacts list. The PAC AE then confirms receipt of the RCAR assignment by the POC. When the POC responds within 10 working days with a plan of action and reasonable schedule (over 1 month requires CAB review) for completion of problem analysis and resolution recommendation, the deadline for POC response is changed in the CAS database by the PAC AE. If a timely response is not provided, the PAC AE informs the POC that the response is considered delinquent and takes steps to facilitate an appropriate response by the POC.

4.1.4 S&MA Problem Resolution / Disposition Review / Concurrence. Once the responsible POC has completed problem evaluation and analysis and has developed a recommended problem resolution / disposition, the POC completes those areas of the RCAR and notifies the PAC to coordinate MSFC review / concurrence. Within ten workdays of notification, the PAC assessment engineer reviews the POC's input for completeness (i.e., an entry in each associated data field), accuracy, and clarity. If Closure by Explanation is recommended, the PAC assessment engineer reviews the recommendation versus required entries for closure by explanation as itemized in MPG 1280.4. If the PAC AE finds fault with the closure recommendation, the POC is consulted for clarification or correction of any discrepancy within the ten workdays.

If the POC recommends closure of the RCAR as a nonproblem, the PAC assessment engineer reviews the nonproblem rationale and either accepts the recommendation or disagrees within ten workdays. If the nonproblem evaluation is accepted, then the PAC initiates closure review of the RCAR by the S&MA project representative within ten workdays and officially closes the RCAR in the database as a nonproblem following S&MA concurrence.

Once all issues have been resolved regarding the POC's input to the mutual satisfaction of both the POC and the PAC or an impasse has been reached in resolution of disputed issues, the PAC updates the problem trend information (if warranted and available per trending criteria described in Section 4.6)

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 10 of 26

and initiates review of the POC recommendation by the MSFC actionee's Corrective Action Board within ten workdays.

The Corrective Action Board is comprised of the MSFC actionees (project manager, chief engineer, and S&MA project representative) chaired by the associated project manager. The PAC facilitates distribution of closure recommendation information to the CAB members and performs administrative support service functions. If obtaining closure is complicated or a CAB member requests a meeting for RCAR closure / disposition review, then the PAC coordinates arrangements for the CAB meeting. Each reviewer has the option to approve, question or reject the POC's recommendation. If rejected, the actionee must provide a rationale for the rejection. The PAC records results of the CAB review, obtains CAB membership signature concurrence, and sees that any decisions, directives, and / or action items issued are entered into the on-line CAS database and communicated to the POC within ten workdays.

Whenever the RCAR is officially approved as closed, the PAC AE completes the RCAR problem file, officially marks it closed, and informs the initiator of the issue regarding its final disposition within ten workdays of CAB approval. The PAC AE also sees that assigned follow-up actions are performed, such as, but not limited to, evaluation of corrective action effectiveness by specific monitoring activities or issuance of a CAN for CAB-declared potential generic or systemic problems.

#### 4.2 Recurrence Control Action Request (RCAR) Processing Initiated by MWI 1280.2, Customer Feedback System.

4.2.1 CF Receipt. Centerwide CF reports are received by the designated CAS Lead for RCAR evaluation, preferably via electronic media e-mail or through the CAS data system. The Problem Assessment Center has no more than **five** work days from S&MA receipt of the report to review the data, determine if it is a reportable problem, and notify the appropriate MSFC personnel - i.e., the initiator if the issue is determined to not meet RCAR reportability or the technical POC responsible for analysis and corrective action recommendation of the designated RCAR, the director of the service / product provider organization, and the designated

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 11 of 26

S&MA representative. If the data is provided other than through the on-line web system, the PAC transfers the data into the web system. If information in addition to CAS data fields is provided in paper form (sketches, etc.), that information is converted to electronic media via scanning and added as a referenced document to the web-based system.

Once the initial information is present in the on-line electronic system, the CAS Lead performs a preliminary review of the data and assigns it to a PAC assessment engineer (AE) for processing.

The PAC AE reviews the data on-line. If there is critical data which is omitted, the AE consults the person who initiated the discrepancy report or other person knowledgeable with the issue in order to complete the information to the fullest extent possible. The PAC AE then screens the report for applicability to the CAS.

4.2.2 CF Screening. Next, the PAC AE codes the feedback as to Failure Mode and Cause, if known. The PAC AE then reviews the historical database for similar CFs based on system / subsystem, hardware / software and failure mode. If at least five (5) similar discrepancies are found, then trending as described in Section 4.6 below will be performed. The AE also reviews the feedback against the Preventive Action Disposition Log to determine if a related preventive action applied to this entity was ineffective in preventing the discrepancy. If so and the preventive action was in response to a CAN, then the PAC AE contacts the MSFC S&MA ALERT Coordinator, re-opens the CAN for the project/process involved, and notifies the involved parties.

The PAC AE then screens the report for applicability to the CAS system. The PAC AE reviews the CF against CAS reporting criteria as defined in MPG 1280.4 (Reference Section 4.2.1, Figure 2). If these criteria are not met, the feedback is eliminated from consideration as a potential CAS problem. In such a case, the data record is marked as not a CAS problem in the data system by the PAC AE and returned to the CAS Lead within the five workdays, along with rationale.

As stated before, CFs which are eliminated from consideration as a CAS problem and from requiring an RCAR are marked as

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 12 of 26

such in the database and returned to the CAS Lead, along with nonproblem rationale. The CAS Lead then reviews the nonproblem evaluation and either concurs or returns the item to the PAC assessment engineer with rationale for declaring it a CAS problem. If the Lead concurs with the non-RCAR rationale, the Lead sends electronic notification along with the rationale for closing the CF without taking corrective action and closes the CF in the Centerwide CF data system. The CF data record is also closed with reference to the follow-on RCAR when it is approved for upgrade to an RCAR.

4.2.3 Initial Processing Of CAS CF RCAR. Once a CF has been accepted as a true CAS problem (i.e., an RCAR) by the CAS Lead, the PAC transfers the issue to the CAS database and completes the RCAR / CAS portion of the CF. If necessary, the PAC AE may consult the comment originator, the S&MA representative, or other MSFC organizations to obtain a sufficient understanding of the situation to complete the initial CAS problem definition data fields. Once this information is complete in the CAS database, the information and the 10 working day deadline for initial POC response is forwarded via e-mail notification to the applicable POC responsible for RCAR resolution recommendation, the chief of the POC's organization, and the designated S&MA representative. (NOTE: The POC directly responsible for problem analysis / resolution recommendation will be declared either in advance by the project / program or as needed in coordination with the organization manager.) In each case, the prime individual responsible for problem evaluation, analysis, and development of corrective action is specifically noted in the data record and in the CAS Lead's contacts list. The PAC AE then confirms receipt of the RCAR assignment by the POC. When the POC responds within 10 working days with a plan of action and reasonable schedule (over 1 month requires CAB review) for completion of problem analysis and resolution recommendation, the deadline for POC response is changed in the CAS database by the PAC AE. If a timely response is not provided, the PAC AE informs the POC that the response is considered delinquent and takes steps to facilitate an appropriate response by the POC.

4.2.4 S&MA Problem Resolution / Disposition Review / Concurrence. Once the responsible POC has completed problem evaluation and analysis and has developed a recommended

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 13 of 26

problem resolution / disposition, the POC completes those areas of the RCAR and notifies the PAC to coordinate MSFC review / concurrence. Within ten workdays of notification, the PAC assessment engineer reviews the POC's input for completeness (i.e., and entry in each associated data field), accuracy, and clarity. If Closure by Explanation is recommended, the PAC assessment engineer reviews the recommendation versus required entries for closure by explanation as itemized in MPG 1280.4. If the PAC AE finds fault with the closure recommendation, the POC is consulted for clarification or correction of any discrepancy within the ten workdays.

If the POC recommends closure of the RCAR as a nonproblem, the PAC assessment engineer reviews the nonproblem rationale and either accepts the recommendation or disagrees within ten workdays. If the nonproblem evaluation is accepted, then the PAC initiates closure review of the RCAR by the S&MA project representative within ten workdays and officially closes the RCAR in the database as a nonproblem following S&MA concurrence.

Once all issues have been resolved regarding the POC's input to the mutual satisfaction of both the POC and the PAC or an impasse has been reached in resolution of disputed issues, the PAC updates the problem trend information (if warranted and available per trending criteria described in Section 4.6) and initiates review of the POC recommendation by the MSFC actionees (product / service organization manager, QMS Management Representative, and designated S&MA representative) Corrective Action Board within ten workdays.

The Corrective Action Board is comprised of the MSFC actionees chaired by the QMS Management Representative. The PAC facilitates distribution of closure recommendation information to the CAB members and performs administrative support service functions. If obtaining closure is complicated or a CAB member requests a meeting for RCAR closure / disposition review, then the PAC coordinates arrangements for the CAB meeting. Each reviewer has the option to approve, question or reject the POC's recommendation. If rejected, the actionee must provide a rationale for the rejection. The PAC records results of the CAB review, obtains CAB membership signature concurrence, and

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 14 of 26

sees that any decisions, directives, and / or action items issued are entered into the on-line CAS database and communicated to the POC within ten workdays.

Whenever the RCAR is officially approved as closed, the PAC AE completes the RCAR problem file, officially marks it closed, and informs the initiator of the issue regarding its final disposition within ten workdays of CAB approval. The PAC AE also sees that follow-up actions are performed, such as, but not limited to, evaluation of corrective action effectiveness by specific monitoring activities or issuance of a CAN for CAB-declared potential generic or systemic problems.

#### 4.3 Recurrence Control Action Request (RCAR) Processing Initiated by MWI 1280.4, MSFC Quality System Deficiency Notice System.

4.3.1 QSDN Receipt. QSDN reports are received for RCAR evaluation, preferably via electronic media, e-mail or through the CAS data system, by the designated CAS Lead. The Problem Assessment Center has no more than **five** work days from S&MA receipt of the report to review the data, determine if it is a reportable problem, and notify the appropriate MSFC personnel - i.e., the initiator if the issue is determined to not meet RCAR reportability or the responsible quality system document OPR or process owner POC responsible for analysis and corrective action recommendation of the designated RCAR. If the data is provided other than through the on-line web system, the PAC transfers the data into the web system. If information in addition to CAS data fields is provided in paper form (sketches, etc.), that information is converted to electronic media via scanning and added to the web-based system.

Once the initial information is present in the on-line electronic system, the CAS Lead performs a preliminary review of the data and assigns it to a PAC assessment engineer (AE) for processing.

The PAC AE reviews the data on-line. If there is critical data which is omitted, the AE consults the person who initiated the QSDN or other person knowledgeable with the issue in order to complete the information to the fullest

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 15 of 26

extent possible. The PAC AE then screens the report for applicability to the CAS.

4.3.2 QSDN Screening. Next, the PAC AE codes the QSDN as to Failure Mode and Cause, if known. The PAC AE then reviews the historical database for similar QSDNs based on system / subsystem and failure mode. If at least five (5) similar discrepancies are found, then trending as described in Section 4.6 below will be performed. The AE also reviews the nonconformance against the Preventive Action Disposition Log to determine if a related preventive action applied to this entity was ineffective in preventing the discrepancy. If so and the preventive action was the result of a CAN, then the PAC AE contacts the MSFC S&MA ALERT Coordinator, re-opens the CAN for the project/process involved, and notifies the involved parties.

The PAC AE then screens the report for applicability to the CAS system. The PAC AE reviews the QSDN against CAS reporting criteria as defined in MPG 1280.4 (Reference Section 4.3.1, Figure 3). If these criteria are not met, the problem is eliminated from consideration as a potential CAS problem. In such a case, the data record is marked as not a CAS problem in the data system by the PAC AE and returned to the CAS Lead within the five workdays, along with rationale.

As stated before, QSDNs which are eliminated from consideration as a CAS problem and from requiring an RCAR are marked as such in the database and returned to the CAS Lead, along with nonproblem rationale. The CAS Lead then reviews the nonproblem evaluation and either concurs or returns the item to the PAC assessment engineer with rationale for declaring it a CAS problem. If he concurs with a non-RCAR recommendation, he then notifies the QSDN originator of the rationale for QSDN closure without action and closes the QSDN in that data system. The QSDN is also closed with reference to the follow-on RCAR when it is approved for upgrade to an RCAR.

4.3.3 Initial Processing Of CAS QSDN RCAR. Once a QSDN has been accepted as a true CAS problem (i.e., an RCAR) by the CAS Lead, the PAC transfers the issue to the CAS database and completes the RCAR / CAS portion of the QSDN. If necessary, the PAC AE may consult the QSDN originator, the

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 16 of 26

S&MA representative, or other MSFC organizations to obtain a sufficient understanding of the situation to complete the initial CAS problem definition data fields. Once this information is complete in the CAS database, the information and the 10 working day deadline for initial POC response is forwarded via e-mail notification to the applicable POC responsible for RCAR resolution recommendation, the chief of the POC's organization, and the designated S&MA representative. (NOTE: The POC directly responsible for problem analysis / resolution recommendation will be declared either in advance by the project / program or as needed in coordination with the organization manager.) In each case, the prime individual responsible for problem evaluation, analysis, and development of corrective action is specifically noted in the data record and in the CAS Lead's contacts list. The PAC AE then confirms receipt of the RCAR assignment by the POC. When the POC responds within 10 working days with a plan of action and reasonable schedule (over 1 month requires CAB review) for completion of problem analysis and resolution recommendation, the deadline for POC response is changed in the CAS database by the PAC AE. If a timely response is not provided, the PAC AE informs the POC that the response is considered delinquent and takes steps to facilitate an appropriate response by the POC.

4.3.4 S&MA Problem Resolution / Disposition Review / Concurrence. Once the responsible POC has completed problem evaluation and analysis and has developed a recommended problem resolution / disposition, the POC completes those areas of the RCAR and notifies the PAC to coordinate MSFC review / concurrence. Within ten workdays of notification, the PAC assessment engineer reviews the POC's input for completeness (i.e., and entry in each associated data field), accuracy, and clarity. If Closure by Explanation is recommended, the PAC assessment engineer reviews the recommendation versus required entries for closure by explanation as itemized in MPG 1280.4. If the PAC AE finds fault with the closure recommendation, the POC is consulted for clarification or correction of any discrepancy within the ten workdays.

If the POC recommends closure of the RCAR as a nonproblem, the PAC assessment engineer reviews the nonproblem rationale and either accepts the recommendation or disagrees within ten



Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 17 of 26

workdays. If the nonproblem evaluation is accepted, then the PAC initiates closure review of the RCAR by the S&MA project representative within ten workdays and officially closes the RCAR in the database as a nonproblem following S&MA concurrence.

Once all issues have been resolved regarding the POC's input to the mutual satisfaction of both the POC and the PAC or an impasse has been reached in resolution of disputed issues, the PAC updates the problem trend information (if warranted and available per trending criteria described in Section 4.6) and initiates review of the POC recommendation by the MSFC actionees (responsible document OPR / process owner management, QMS Management Representative, and designated S&MA representative) Corrective Action Board within ten workdays.

The Corrective Action Board is comprised of the MSFC actionees chaired by the QMS Management Representative. The PAC facilitates distribution of closure recommendation information to the CAB members and performs administrative support service functions. If the closure is involved or a CAB member requests a meeting for RCAR closure / disposition review, then the PAC coordinates arrangements for the CAB meeting. Each reviewer has the option to approve, question or reject the POC's recommendation. If rejected, the actionee must provide a rationale for the rejection. The PAC records results of the CAB review, obtains CAB membership signature concurrence, and sees that any decisions, directives, and / or action items issued are entered into the on-line CAS database and communicated to the POC within ten workdays.

Whenever the RCAR is officially approved as closed, the PAC AE completes the RCAR problem file, officially marks it closed, and informs the initiator of the issue regarding its final disposition within ten workdays of CAB approval. The PAC AE also sees that follow-up actions are performed, such as, but not limited to, evaluation of corrective action effectiveness by specific monitoring activities or issuance of a CAN for CAB-declared potential generic or systemic problems.

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 18 of 26

4.4 CAS Database Maintenance. S&MA encourages all persons involved in nonconformance (DR, CF, and QSDN) initiation, problem analysis and disposition, and disposition review / concurrence to use the web-based electronic system for themselves to enter all pertinent data to their part of problem processing. S&MA's Information Management support group assures that adequate access and security and update capabilities are provided for this data to the PAC and all actionees.

If, for whatever reason, the persons involved are not able to directly enter their input into the electronic system, they may provide this data either in electronic or hardcopy format to the PAC. The PAC, in consultation with the Information Management group as required, converts the data into a form accessible to the web-based data system and either enters or attaches the information to the CAS record. Any such attached file is directly accessible from the on-line web data system.

The PAC and CAS Lead works with the Information Management group to assure that the CAS database system is maintained to an adequate performance level. A regular backup of the total CAS system, both data and software, is performed by the ODIN data system support contractor in keeping with their data backup procedures.

4.5 Regular and Ad Hoc Reporting If the CAS problem has not been expeditiously addressed as required by MPG 1280.4 after initial transfer of the CAS processing responsibilities to the investigation / resolution organization, response is considered delinquent. Each month, each PAC AE reviews open RCARs and statuses them, as required, with the POC - providing results to the CAS Lead. A list of all delinquent reports is generated by the PAC from the CAS database and AE input and provided electronically to the POCs, organizational chiefs and S&MA representative having delinquent responses within their area as specified in MPG 1280.4. A comparable listing of all delinquent reports is generated and stored on the CAS web page for general availability.

The PAC also generates a monthly list of the newly opened and newly closed CAS RCARs from the prior month. This report is also made available on the CAS web page.

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 19 of 26

The PAC also generates input to the Certification of Flight Readiness / Flight Readiness Review cycle. When there is an open RCAR related to a mission milestone, this information is provided as supporting data as open work against the mission milestone.

4.6 CAS Problem Trending Trending is only performed when the frequency of nonconformances or CAS-reported problems for related components or related problem symptoms (i.e., Failure Mode) or failure cause within a given program have at least five occurrences. Whenever this problem count is met or exceeded, the PAC AE performs a review of the database to reveal any trend that may have developed. The AE also checks for similar problems in other projects to ferret out any cross-Center trends that may affect more than one project.

The steps in problem trending are as follows:

- a) The PAC AE reviews the data base for trends on the project where the latest occurrence was identified.
- b) The PAC AE reviews the data base for similar problems in other projects.
- c) Based on engineering judgment, the AE evaluates the trend as good (i.e., occurring less frequently over time) or adverse (i.e., failure or failure rate increasing or not becoming less frequent over time. If an adverse trend is identified for a draft RCAR, this is considered in RCAR screening. If an adverse trend is identified after RCAR declaration, this information will be brought to the POC and CAB for their consideration.

The trending information, consisting of the historical listing of related problems, is included as an Adobe Acrobat (.pdf) attachment to the CAS RCAR source document and is available in the CAS data base.

## 5. NOTES

5.1 Directive Replacement. This Directive replaces QS-R-012F, S&MA (CR) Operation of the MSFC Corrective Action System.

## 6. SAFETY PRECAUTIONS AND WARNING NOTES

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 20 of 26

None

## 7. APPENDICES, DATA, REPORTS, AND FORMS

S&MA operation of the CAS uses hardcopy and / or electronic versions of the following standard MSFC forms:

MSFC Form 460	Discrepancy Record (DR) (Reference MPG 8730.3)
MSFC Form 4306	MSFC Customer Feedback (Reference MWI 1280.2)
MSFC Form 4334	MSFC Corrective / Preventive Action Notification (Reference MWI 1280.3)
MSFC Form 4335	MSFC Quality System Deficiency Notice (Reference MWI 1280.4)

## 8. QUALITY RECORDS

<u>Quality Record</u>	<u>Repository</u>	<u>Period of Time</u>
CAS Reports - All CAS RCAR records (CAS reportable DRs, Customer Feedbacks, and Quality System Discrepancy Notices) are considered Quality Records	QS40: CAS Lead; Maintained in the CAS Database on the MSFCSMA1 server; Source paper documents of CAS reports, if any, are stored with the CAS Lead	NRRS 1/26.5A Paper destroyed when 7 years old. Electronic Files, treated as unscheduled - handle as permanent pending approval, are maintained for Life of the CAS
CAS CAB Decisions, Directives, and / or Action Items	QS40: CAS Lead; Maintained In The CAS Database On The MSFCSMA1 Server; Source paper documents of CAS	NRRS 1/26.5A Paper destroyed when 7 years old. Electronic Files, treated as unscheduled - handle as

**CHECK THE MASTER LIST AT: <http://inside.msfc.nasa.gov/MIDL/>  
VERIFY THAT THIS IS THE CORRECT VERSION BEFORE USE**

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 21 of 26

	CAB actions are stored with the CAS Lead	permanent pending approval, are maintained for Life of the CAS
--	--	--

## 9. TOOLS, EQUIPMENT, AND MATERIALS

Performance of this OI requires the MSFC CAS, QSDN, CF, and DR databases and their associated hardware / software environment(s). It also requires access to Adobe Acrobat .pdf generator software, such as Acrobat Distiller and Acrobat PDF Writer. Access to a scanner and scanner software to convert hardcopy documents into electronic image storage format are also required.

## 10. PERSONNEL TRAINING AND CERTIFICATION

None

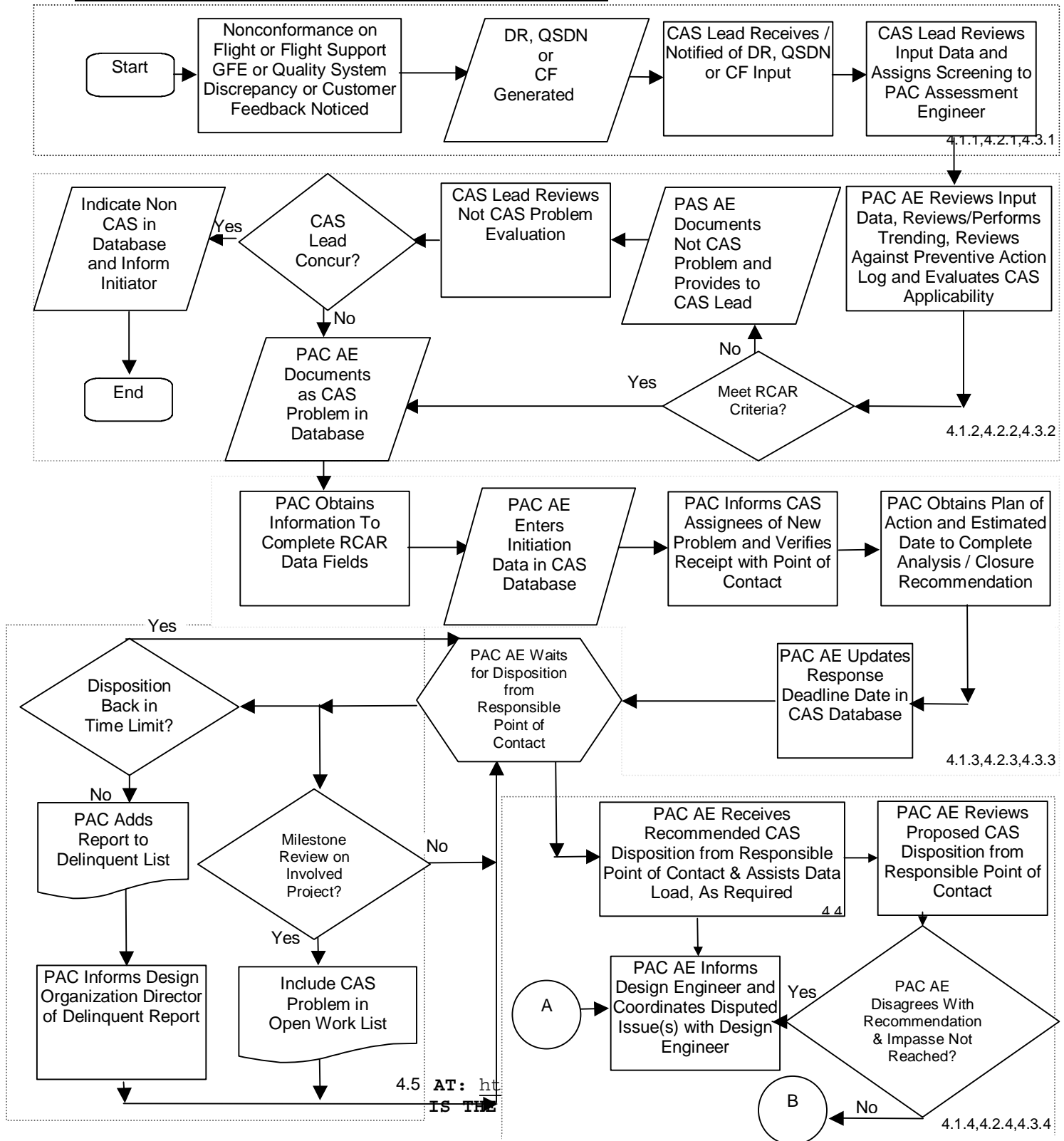
## 10. PERSONNEL TRAINING AND CERTIFICATION

None

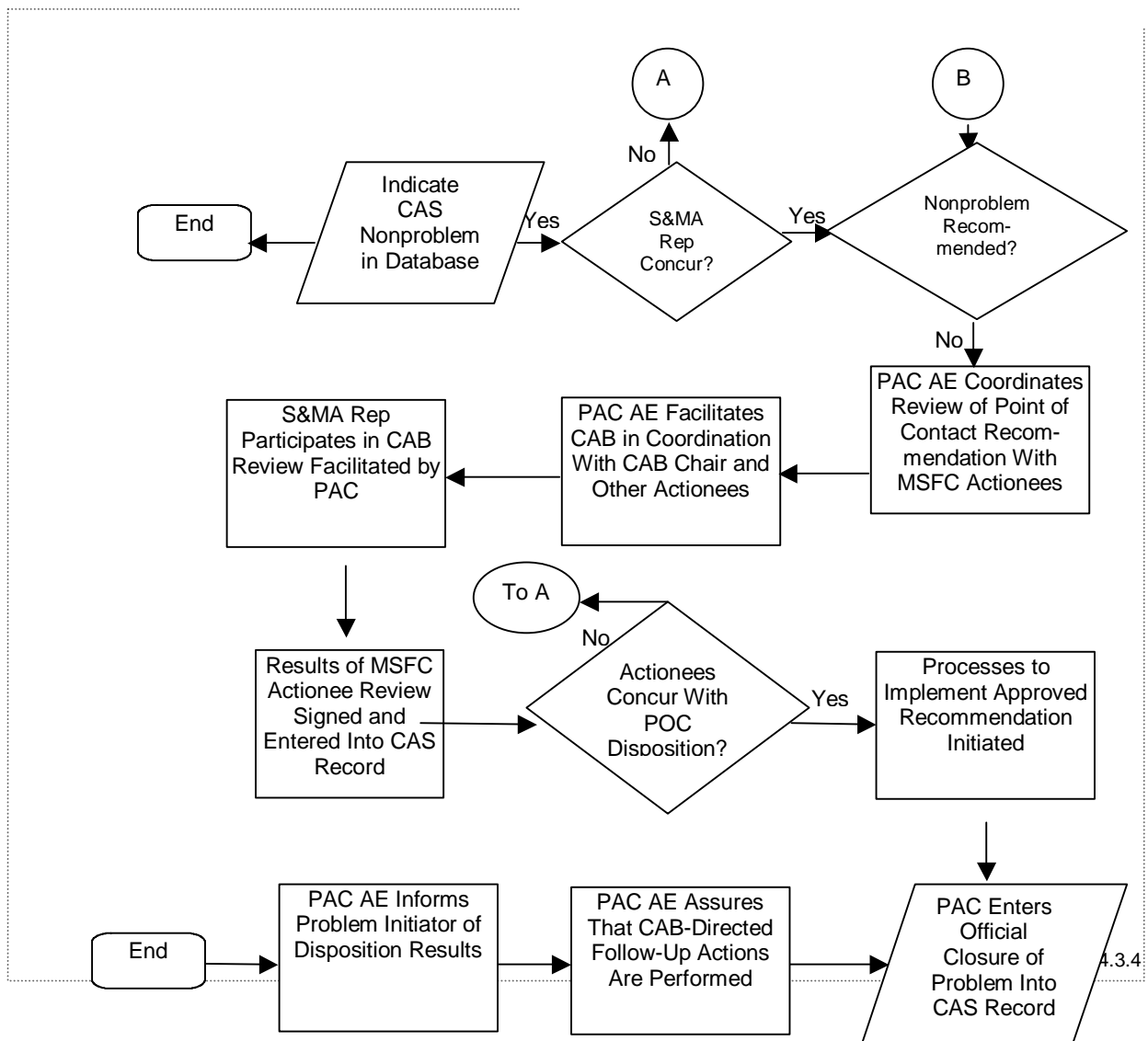
## 11. FLOW DIAGRAMS

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 22 of 26

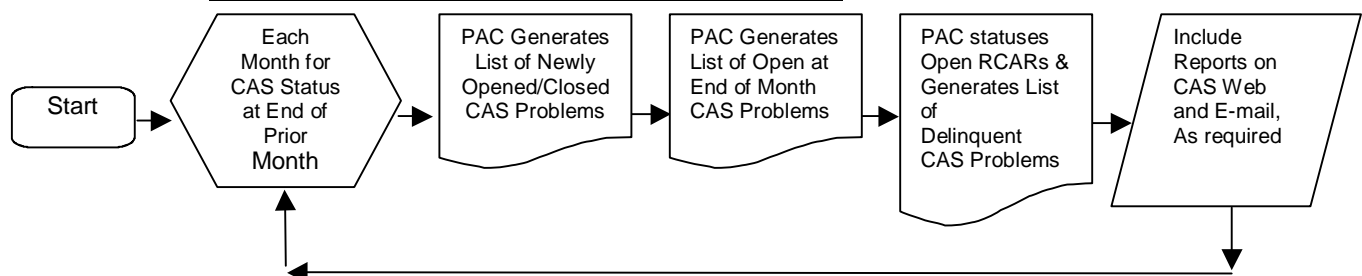
### 11.1 Problem Generation, Screening, Processing, and Review / Concurrence (Reference 4.1 through 4.5)



Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 23 of 26

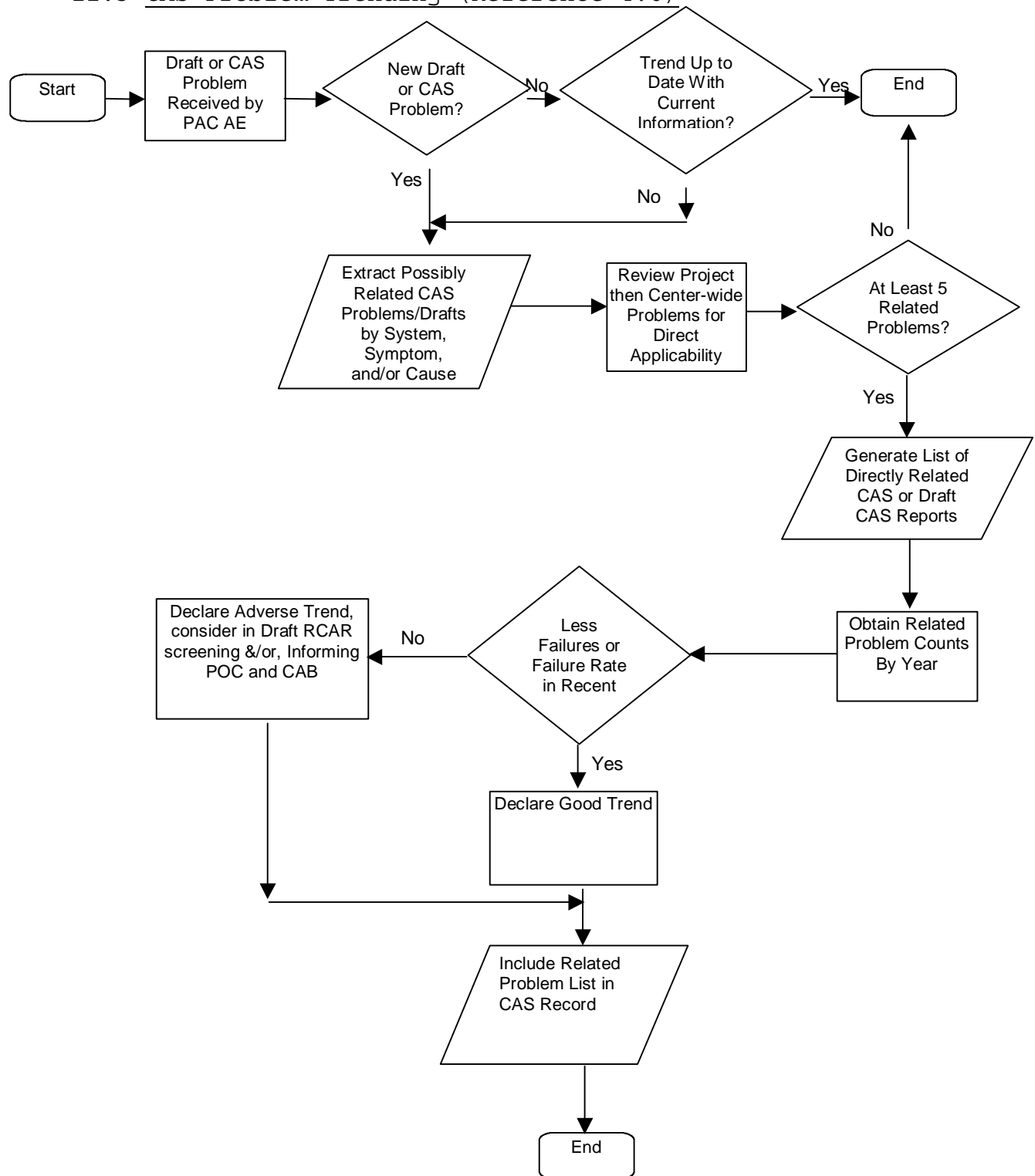


## 11.2 Regular Reporting (Reference 4.5)



Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 24 of 26

### 11.3 CAS Problem Trending (Reference 4.6)





Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 25 of 26

## 12. RESPONSIBILITIES

12.1 CAS Lead. The CAS Lead is responsible for:

- obtaining and assigning actionees for CAS problems in the various projects, organizations, and / or directorate areas
- receiving and delegating DRs / CFs / QSDNs to a specific PAC assessment engineer for preliminary review and screening
- reviewing and approving PAC nonproblem declaration,
- assuring generation and provision of required regular and ad hoc CAS reports
- assuring quality of performance by the assigned PAC assessment engineer
- coordinating with the S&MA information management support group maintenance and required upgrade to the CAS electronic database

12.2 PAC Assessment Engineer. The PAC assessment engineer is responsible for:

- screening DRs, CFs, and QSDNs as assigned by the CAS Lead for CAS applicability within 5 work days from report receipt by the PAC
- assuring and, if necessary, providing complete nonconformance data during initial report screening
- documenting rationale for evaluating the nonconformance as a CAS problem or nonproblem in the electronic data system
- evaluating and, if justified, performing problem trending on assigned draft and screened CAS problems
- reviewing design engineer problem disposition recommendation CAS input for completeness and accuracy within ten days of receipt
- coordinating with the design engineer any disagreements regarding the design engineer's evaluation and recommendation within ten days of receipt
- initiating review of proposed CAS problem resolution / disposition by the MSFC actionees within ten days of POC completion and coordinating actionee review

Organizational Instruction		
Title: S&MA (QS) Operation Of The MSFC Corrective Action System	QS-R-012	Revision: G
	Date: 11/20/03	Page: 26 of 26

- facilitating arrangements for CAB review within ten days of POC completion, administering the CAB, and supporting a problem review board on assigned CAS problems
- notifying the initiator of the DR / CF / QSDN of the problem disposition within ten days of disposition
- assuring completion of all assigned follow-up actions from the CAB

12.3 S&MA Representative. The S&MA representative is responsible for:

- assisting the PAC assessment engineer in obtaining required data for evaluation of potential CAS problems
- evaluating and approving nonproblem recommendations by the point of contact
- reviewing and approving proposed disposition rationale from the point of contact regarding CAS problems
- participating in CAS corrective action boards regarding the project, process, service, or procedure, as required